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THE DANGEROUS SEQUELÆ OF MIDDLE-EAR SUPPURATION.

BEING A RETROSPECT OF 1905.

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THE dangerous sequelæ of suppurative inflammation of the middle ear, formerly one of the most depressing chapters in otology, has now become one of the most encouraging, as it is undoubtedly one of the most interesting and important. The American Laryngological, Rhinological and Otological Society devoted a meeting to a symposium[1] on the "Intra-Cranial Complications of Middle-Ear Suppuration," which Dr. E. B. Dench opened with his characteristic thoroughness. He gave statistics which may be taken as thoroughly illustrative, and, as he states, fairly accurate, with the reservation of certain doubts with regard to meningitis, many cases of which he considers must have escaped observation.

Meningitis.—Dr. MacCuen Smith stated that although the symptoms in many cases of meningitis were perfectly clear and unmistakable, in others they were often latent; how latent they may be is shown by the valuable case narrated by Mr. Cumberbatch before the Otological Society of the United Kingdom.[2] In

[1] JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. XX, p. 479. [2] *Ibid.*, p. 70.

this instance a fatal lepto-meningitis followed upon acute suppurative otitis media of influenzal origin, with a remarkable absence of pathognomonic symptoms, there being persistent high temperature but very little headache, and no vomiting. Exploration of the lateral sinus gave a negative result; the patient became drowsy, ultimately unconscious, and on *post-mortem* examination there was found lepto-meningitis of the entire left side of the brain, while the venous sinuses and jugular vein were free from any clot, and all the organs were found to be healthy. Dr. MacCuen Smith included lumbar puncture among our therapeutic resources in meningitis, and in the discussion on Mr. Cumberbatch's case a member reminded the Society of Lermoyez's favourable report with regard to treatment by means of repeated copious lumbar punctures combined with a very large trephine opening in the skull to diminish pressure and relieve tension. Grossmann,[1] on the other hand, questions whether lumbar puncture is of any value as a therapeutical measure in cases of otitic meningitis. Allowing for its limitations and the uncertainties at present of the indications for its employment, there can be no doubt that most of us will agree with Dr. Wendell Phillips[2] that it should be used in practically all cases of meningitis, a careful examination of the cerebro-spinal fluid often determining the exact character of the intra-cranial condition. Remarkable recoveries observed in many cases presenting in a marked degree the symptoms of meningitis have been shown to be due to the inflammation being of a serous rather than a purulent nature. This has been demonstrated by lumbar puncture, which enables us to give a more favourable prognosis, and to recommend the more confident adoption of life-saving methods of operation. Dr. Phillips[3] reminded his hearers that "statistics showed that injuries to the head were quite frequently associated with attacks of meningitis from middle-ear suppuration." From this we may deduce the prophylactic caution that the subjects of chronic suppuration of the middle ear should be particularly careful to avoid the risk of injuries to the head.

Cerebral and cerebellar abscess.—Several cases have been published in which some of the most distinguishing symptoms have been absent. In one of Whitehead's cases[4] there was a high temperature and symptoms suggesting meningitis, with very rapidly increasing drowsiness. Exploration revealed no pus. Next day the temperature went down, but the drowsiness increased. Lumbar puncture withdrew clear fluid, and on a subsequent exploration of

[1] *Ibid.*, p. 505. [2] *Ibid.*, p. 484. [3] *Ibid.*, p. 483. [4] *Ibid.*, p. 84.

the cerebrum on the fifth day semi-purulent blood-stained fluid was evacuated. Halsted[1] describes a cerebral abscess following acute suppuration of the middle ear at an interval of ten days.

An instructive case of cerebellar abscess following acute middle-ear suppuration is narrated by Bull,[2] apparently developing in three weeks, but with a high temperature. Pus was found in the sigmoid sulcus, but the sinus appeared normal. Temperature descended, but rose next evening with a rigor. The jugular vein was tied and the sinus incised with negative result. The dura behind was incised, and softened, broken-down brain-matter escaped. A hernia cerebelli formed and was incised, two drachms of pus escaping. Drainage was ultimately followed by perfect recovery. Pinder,[3] in a fairly typical case, explored the cerebellum behind the sinus with negative result, but evacuated pus when the cerebellum was further explored on the central side of the sinus, recovery ensuing. Okada, in his classical work on cerebellar abscess, strongly advocates this route as being the most nearly in the line of infection. In fifty per cent. of cases the abscess is due to infection from the labyrinth or the bone in its neighbourhood (around the aqueductus vestibuli), and the point mentioned is, of course, indicated. In the remaining fifty per cent. the abscess arises from phlebitis of the sinus, and then perhaps the opening behind the sinus, or through it, is to be preferred. In any case, if the suppuration persists after evacuation by one of these routes, a counter-opening may be made through the other.

Hernia cerebri et cerebelli.—Hunter Tod[4] relates an exceptional experience—namely, the occurrence of a hernia of the size of a boy's fist at the site of exploration in a case of encephalitis following acute middle-ear suppuration. Pus was found in the groove for the lateral sinus, and the internal jugular vein was ligatured, the sinus on incision being then found free from thrombus. Drowsiness and shivering followed, and exploration of the cerebrum and cerebellum was carried out, serous blood-stained fluid without pus escaping. A huge hernia formed, and the boy appeared about to die from meningitis, but he gradually recovered, although the hernia still persisted.

Sinus phlebitis.—McKernon,[5] in reviewing the symptoms, considers temperature the most important, rigors not being constant. The pain is usually greater than that of an ordinary mastoiditis. Such local signs as œdema in the mastoid region and in the neighbourhood of the mastoid and occipital emissaries are

[1] *Ibid.*, p. 611. [2] *Ibid.*, p. 250. [3] *Ibid.*, p. 500. [4] *Ibid.*, p. 154. [5] *Ibid.*, p. 481.

only occasionally met with, and the "cord-like" hardness in the line of the internal jugular vein is very infrequent. The author attaches considerable importance to the presence of a high percentage of polynuclear leucocytes in the blood.

Some questions relating to ligature of the internal jugular vein are raised by Dundas Grant.[1] He points out that in many cases, as shown by Macewen, Cheatle, and himself, recovery can be brought about without ligature, and that, although in many cases it is necessary for the saving of life, and in most cases is quite harmless, there is a residuum of cases in which, as, for instance, from abnormal narrowness of the opposite jugular, serious cerebral disturbance may be produced. He holds that the operator's attention should be centred more on the sigmoid sinus than on the jugular vein. The members of the Otological Society were in general strenuous advocates for the ligature of the vein as a matter of routine. In view of the divergence of opinions Dr. Grant suggested that the subject might be made the subject of a set discussion.

A case of infective thrombosis of the sigmoid and lateral sinuses after acute mastoiditis ending fatally from meningitis is reported by Arnold Knapp,[2] who draws from it arguments in favour of opening the sinus earlier than is usually done, and of distrusting the appearance of a clot however harmless it may look. He is in favour of exposing the lateral sinus as far back as the torcular, shutting off the circulation at that point by firm pressure and excising the entire external wall of the sinus. This, like other principles, has to be applied to different cases according to the special circumstances, which the operator must learn to appreciate, as a player has to appreciate the "fall of the cards" if he is to apply the rules of the game with the best results.

[1] *Ibid.*, p. 453. [2] *Ibid.*, p. 478.

The Extra-Metropolitan Meeting of the Otological Society of the United Kingdom will be held at Leeds this year on the second or third Saturday in June.